(d) *Factors to consider when selecting the alternative to pursue.* When selecting the alternative to pursue, the authorized official shall evaluate each of the possible alternatives based on all relevant considerations, including the following factors:

(1) Technical feasibility, as that term is used in this part.

(2) The relationship of the expected costs of the proposed actions to the expected benefits from the restoration, rehabilitation, replacement, and/or acquisition of equivalent resources.

(3) Cost-effectiveness, as that term is used in this part.

(4) The results of any actual or planned response actions.

(5) Potential for additional injury resulting from the proposed actions, including long-term and indirect impacts, to the injured resources or other resources.

(6) The natural recovery period determined in §11.73(a)(1) of this part.

(7) Ability of the resources to recover with or without alternative actions.

(8) Potential effects of the action on human health and safety.

(9) Consistency with relevant Federal, State, and tribal policies.

(10) Compliance with applicable Federal, State, and tribal laws.

(e) A Federal authorized official shall not select an alternative that requires acquisition of land for Federal management unless the Federal authorized official determines that restoration, rehabilitation, and/or other replacement of the injured resources is not possible.

[59 FR 14284, Mar. 25, 1994]]

§ 11.83 Damage determination phase—use value methodologies.

(a) *General.* (1) This section contains guidance and methodologies for determining: The costs of the selected alternative for restoration, rehabilitation, replacement, and/or acquisition of equivalent resources; and the compensable value of the services lost to the public through the completion of the restoration, rehabilitation, replacement, and/or acquisition of the equivalent of the injured resources and their services to baseline.

(2)(i) The authorized official shall select among the cost estimating and valuation methodologies set forth in this section, or methodologies that meet the acceptance criterion of either paragraph (b)(3) or (c)(3) of this section.

(ii) The authorized official shall define the objectives to be achieved by the application of the methodologies.

(iii) The authorized official shall follow the guidance provided in this section for choosing among the methodologies that will be used in the Damage Determination phase.

(iv) The authorized official shall describe his selection of methodologies and objectives in the Restoration and Compensation Determination Plan.

(3) The authorized official shall determine that the following criteria have been met when choosing among the cost estimating and valuation methodologies. The authorized official shall document this determination in the Report of the Assessment. Only those methodologies shall be chosen:

(i) That are feasible and reliable for a particular incident and type of damage to be measured.

(ii) That can be performed at a reasonable cost, as that term is used in this part.

(iii) That avoid double counting or that allow any double counting to be estimated and eliminated in the final damage calculation.

(iv) That are cost-effective, as that term is used in this part.

(b) *Costs of restoration, rehabilitation, replacement, and/or acquisition of equivalent resources.* (1) Costs for restoration, rehabilitation, replacement, and/or acquisition of equivalent resources are the amount of money determined by the authorized official as necessary to complete all actions identified in the selected alternative for restoration, rehabilitation, replacement, and/or acquisition of equivalent resources, as selected in the Restoration and Compensation Determination Plan of §11.81 of this part. Such costs shall include direct and indirect costs, consistent with the provisions of this section.

(i) Direct costs are those that are identified by the authorized official as attributed to the selected alternative. Direct costs are those charged directly to the conduct of the selected alternative including, but not limited to, the compensation of employees for the

time and effort devoted to the completion of the selected alternative; cost of materials acquired, consumed, or expended specifically for the purpose of the action; equipment and other capital expenditures; and other items of expense identified by the authorized official that are expected to be incurred in the performance of the selected alternative.

(ii) Indirect costs are costs of activities or items that support the selected alternative, but that cannot practically be directly accounted for as costs of the selected alternative. The simplest example of indirect costs is traditional overhead, e.g., a portion of the lease costs of the buildings that contain the offices of trustee employees involved in work on the selected alternative may, under some circumstances, be considered as an indirect cost. In referring to costs that cannot practically be directly accounted for, this subpart means to include costs that are not readily assignable to the selected alternative without a level of effort disproportionate to the results achieved.

(iii) An indirect cost rate for overhead costs may, at the discretion of the authorized official, be applied instead of calculating indirect costs where the benefits derived from the estimation of indirect costs do not outweigh the costs of the indirect cost estimation. When an indirect cost rate is used, the authorized official shall document the assumptions from which that rate has been derived.

(2) *Cost estimating methodologies.* The authorized official may choose among the cost estimating methodologies listed in this section or may choose other methodologies that meet the acceptance criterion in paragraph (b)(3) of this section. Nothing in this section precludes the use of a combination of cost estimating methodologies so long as the authorized official does not double count or uses techniques that allow any double counting to be estimated and eliminated in the final damage calculation.

(i) *Comparison methodology.* This methodology may be used for unique or difficult design and estimating conditions. This methodology requires the construction of a simple design for which an estimate can be found and applied to the unique or difficult design.

(ii) *Unit methodology.* This methodology derives an estimate based on the cost per unit of a particular item. Many other names exist for describing the same basic approach, such as order of magnitude, lump sum, module estimating, flat rates, and involve various refinements. Data used by this methodology may be collected from technical literature or previous cost expenditures.

(iii) *Probability methodologies.* Under these methodologies, the cost estimate represents an ''average'' value. These methodologies require information which is called certain, or deterministic, to derive the expected value of the cost estimate. Expected value estimates and range estimates represent two types of probability methodologies that may be used.

(iv) *Factor methodology.* This methodology derives a cost estimate by summing the product of several items or activities. Other terms such as ratio and percentage methodologies describe the same basic approach.

(v) *Standard time data methodology.* This methodology provides for a cost estimate for labor. Standard time data are a catalogue of standard tasks typically undertaken in performing a given type of work.

(vi) *Cost- and time-estimating relationships (CERs and TERs).* CERs and TERs are statistical regression models that mathematically describe the cost of an item or activity as a function of one or more independent variables. The regression models provide statistical relationships between cost or time and physical or performance characteristics of past designs.

(3) *Other cost estimating methodologies.* Other cost estimating methodologies that are based upon standard and accepted cost estimating practices and are cost-effective are acceptable methodologies to determine the costs of restoration, rehabilitation, replacement, and/or acquisition of equivalent resources under this part.

(c) *Compensable value.* (1) Compensable value is the amount of money required to compensate the public for the loss in services provided by the injured

resources between the time of the discharge or release and the time the resources and the services those resources provided are fully returned to their baseline conditions. The compensable value includes the value of lost public use of the services provided by the injured resources, plus lost nonuse values such as existence and bequest values. Compensable value is measured by changes in consumer surplus, economic rent, and any fees or other payments collectable by a Federal or State agency or an Indian tribe for a private party's use of the natural resources; and any economic rent accruing to a private party because the Federal or State agency or Indian tribe does not charge a fee or price for the use of the resources.

(i) Use value is the value of the resources to the public attributable to the direct use of the services provided by the natural resources.

(ii) Nonuse value is the difference between compensable value and use value, as those terms are used in this section.

(iii) Estimation of option and existence values shall be used only if the authorized official determines that no use values can be determined.

(2) *Valuation methodologies.* The authorized official may choose among the valuation methodologies listed in this section to estimate willingness to pay (WTP) or may choose other methodologies provided that the methodology can satisfy the acceptance criterion in paragraph (c)(3) of this section. Nothing in this section precludes the use of a combination of valuation methodologies so long as the authorized official does not double count or uses techniques that allow any double counting to be estimated and eliminated in the final damage calculation.

(i) *Market price methodology.* This methodology may be used if the natural resources are traded in the market. In using this methodology, the authorized official should make a determination as to whether the market for the resources is reasonably competitive. If the authorized official determines that the market for the resources, or the services provided by the resources, is reasonably competitive, the diminution in the market price of the injured resources, or the lost services, may be used to determine the compensable value of the injured resources.

(ii) *Appraisal methodology.* Where sufficient information exists, the appraisal methodology may be used. In using this methodology, compensable value should be measured, to the extent possible, in accordance with the applicable sections of the ''Uniform Appraisal Standards for Federal Land Acquisition'' (Uniform Appraisal Standards), Interagency Land Acquisition Conference, Washington, DC, 1973 (incorporated by reference, see §11.18). The measure of compensable value under this appraisal methodology will be the difference between the with- and without-injury appraisal value determined by the comparable sales approach as described in the Uniform Appraisal Standards.

(iii) *Factor income methodology.* If the injured resources are inputs to a production process, which has as an output a product with a well-defined market price, the factor income methodology may be used. This methodology may be used to determine the economic rent associated with the use of resources in the production process. This methodology is sometimes referred to as the ''reverse value added'' methodology. The factor income methodology may be used to measure the in-place value of the resources.

(iv) *Travel cost methodology.* The travel cost methodology may be used to determine a value for the use of a specific area. An individual's incremental travel costs to an area are used as a proxy for the price of the services of that area. Compensable value of the area to the traveler is the difference between the value of the area with and without a discharge or release. When regional travel cost models exist, they may be used if appropriate.

(v) *Hedonic pricing methodology.* The hedonic pricing methodology may be used to determine the value of nonmarketed resources by an analysis of private market choices. The demand for nonmarketed natural resources is thereby estimated indirectly by an analysis of commodities that are traded in a market.

(vi) *Unit value methodology*. Unit values are preassigned dollar values for various types of nonmarketed recreational or other experiences by the public. Where feasible, unit values in the region of the affected resources and unit values that closely resemble the recreational or other experience lost with the affected resources may be used.

(vii) *Contingent valuation methodology*.(A) The contingent valuation methodology includes all techniques that set up hypothetical markets to elicit an individual's economic valuation of a natural resource. This methodology can determine use values and explicitly determine option and existence values. This methodology may be used to determine lost use values of injured natural resources.

(B) The use of the contingent valuation methodology to explicitly estimate option and existence values should be used only if the authorized official determines that no use values can be determined.

(3) *Other valuation methodologies*. Other valuation methodologies that measure compensable value in accordance with the public's WTP, in a cost-effective manner, are acceptable methodologies to determine compensable value under this part.

[51 FR 27725, Aug. 1, 1986, as amended at 53 FR 5175, Feb. 22, 1988; 59 FR 14285, Mar. 25, 1994]

§ 11.84 Damage determination phase—implementation guidance.

(a) *Requirement*. The authorized official should use the cost estimating and valuation methodologies in § 11.83 of this part following the appropriate guidance in this section.

(b) *Determining uses*. (1) Before estimating damages for compensable value under § 11.83 of this part, the authorized official should determine the uses made of the resource services identified in the Quantification phase.

(2) Only committed uses, as that phrase is used in this part, of the resource or services over the recovery period will be used to measure the change from the baseline resulting from injury to a resource. The baseline uses must be reasonably probable, not just in the realm of possibility. Purely speculative uses of the injured resource are precluded from consideration in the estimation of damages.

(3)(i) When resources or resource services have mutually exclusive uses, the highest-and-best use of the injured resource or services, as determined by the authorized official, shall be used as the basis of the analyses required in this part. This determination of the highest-and-best use must be consistent with the requirements of paragraph (b)(2) of this section.

(ii) If the uses of the resource or service are not necessarily mutually exclusive, the sum of damages should be determined from individual services. However, the sum of the projected damages from individual services shall consider congestion or crowding out effects, if any, from the resulting projected total use of those services.

(c) *Double counting*. (1) Double counting of damages should be avoided. Double counting means that a benefit or cost has been counted more than once in the damage assessment.

(2) Natural resource damages are the residual to be determined by incorporating the effects, or anticipated effects, of any response actions. To avoid one aspect of double counting, the effects of response actions shall be factored into the analysis of damages. If response actions will not be completed until after the assessment has been initiated, the anticipated effects of such actions should be included in the assessment.

(d) *Uncertainty*. (1) When there are significant uncertainties concerning the assumptions made in all phases of the assessment process, reasonable alternative assumptions should be examined. In such cases, uncertainty should be handled explicitly in the analysis and documented. The uncertainty should be incorporated in the estimates of benefits and costs.

(2) To incorporate this uncertainty, the authorized official should derive a range of probability estimates for the important assumptions used to determine damages. In these instances, the damage estimate will be the net expected present value of the costs of restoration, rehabilitation, replacement,